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Peer Review

Review of: "[Review Article] Green Strategies for the Synthesis of Quinolone Derivatives"

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Quinolones represent a prominent class of nitrogen-containing heterocycles that exhibit a broad spectrum of biological activities. These include antibacterial, anti-inflammatory, antimalarial, anticancer, antifungal, and antitubercular effects, among others. Due to their diverse pharmacological potential, quinolone derivatives have become highly significant in the field of medicinal chemistry.

The structural integrity of quinolones plays a critical role in their biological activity. Typically, the N-1 position of the quinolone ring is substituted with a basic cyclic moiety, the C-3 position requires a carboxylic acid group, and the C-4 position must possess a ketone functional group. However, these structural requirements can vary depending on the specific therapeutic target or desired pharmacological profile.

Q. 1 How do structural modifications influence the pharmacokinetic profiles (e.g., absorption, distribution, metabolism, and excretion) of quinolone derivatives?

Q. 2 To what extent can green solvents and low-energy protocols be optimized to replace traditional organic synthesis routes without compromising the yield or purity of quinolone derivatives?

Q.3 How do specific substitutions at positions N-1 and C-5 to C-8 affect the biological activity and selectivity of quinolone derivatives across different disease models?

Declarations

Potential competing interests: No potential competing interests to declare.

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